

ULTRAVIOLET POLARIZER AND POLARIZED ULTRAVIOLET LIGHT SOURCE DEVICE

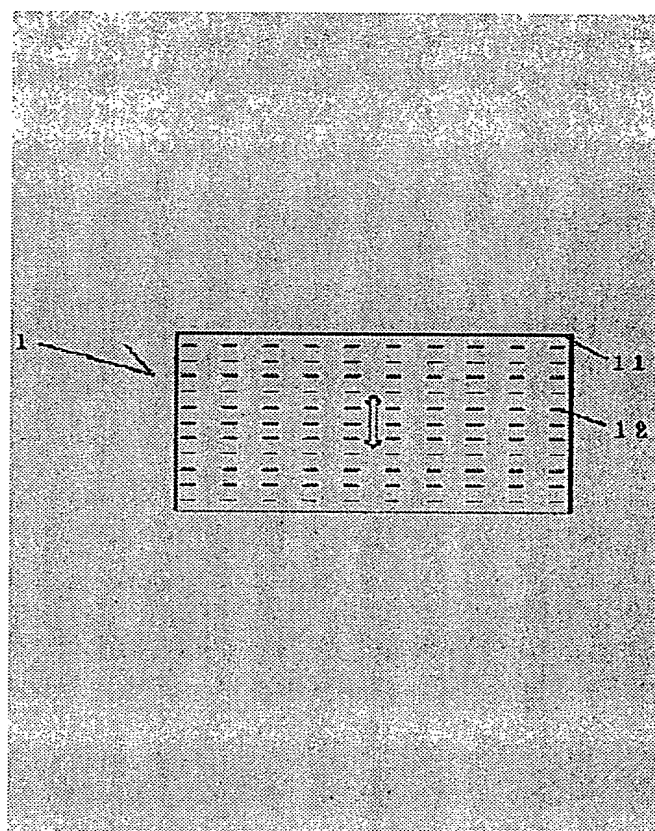
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Abstract of JP2000162432

PROBLEM TO BE SOLVED: To provide a member to form polarized ultraviolet excellent in thin ness and in lightness and easy to manipulate, which has a wide range of selection of an oriented film formation material and which causes almost no exothermic reaction and deterioration, by facilitating polarization formation in a large area and utilizing a wide wavelength range of ultraviolet light.

SOLUTION: This ultraviolet polarizer 1 contains needle materials 12 of aspect ratio not less than 2 and of breadth not more than $0.5 \mu\text{m}$, dispersed and oriented in a specified direction, in an ultraviolet transmissive film 11 of refractive index difference not less than 0.05, and a polarized ultraviolet light source device has the ultraviolet polarizer 1 in a light-emitting surface of an ultraviolet radiating device. Accordingly, polarized ultraviolet, excellent in a life and easy to manipulate in a slim form, can be formed simply by being set in the ultraviolet radiating device.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[01]

[Field of the Invention] This invention relates to the suitable ultraviolet-rays polarizer for formation etc. of its ultraviolet-rays polarization light equipment of the orientation film which carries out orientation processing of the liquid crystal.

[02]

[Background of the Invention] Uniform processing in a large area by the orientation film by rubbing processing is difficult, and the formation approach of the orientation film by the photoisomerization reaction which used polarization ultraviolet rays while the orientation film which is more difficult to cope with enlargement of a liquid crystal display than there is [electrification,] also much generating of dust, and can carry out orientation processing of the liquid crystal at a large area was called for, and photodimerization, a photolysis reaction, etc. is proposed.

[03] Conventionally, as a formation member of the above mentioned polarization ultraviolet rays, the prism polarizer, the polarization film, and the polarization eliminator were known. However, with a prism polarizer, with the polarization film using the matter in which dichroism is shown in an ultraviolet region, it is difficult to acquire polarization of a large area, and since a functional limitation was 350nm, it was restrained by the orientation film which induces the wavelength beyond it, and enlargement was difficult. There was a trouble that generation of heat and degradation by absorption light were large.

[04] Moreover, in the polarization eliminator using the BURYU star angle by the glass plate of a lamination, since there was the need of enlargement of equipment being remarkable and setting angle of incidence as a BURYU star angle, with large-area-izing of polarization, there was a trouble that a highly precise setting technique was required of the assembly of equipment.

[05]

[The technical technical problem of invention] The ultraviolet radiation of a wavelength region that polarization formation of a large area is easy for this invention and large can be used, therefore generation of heat and degradation are small, the selection range of an orientation film morphogenetic stance is wide, and handling makes [it excels in thin lightweight nature and] a technical problem development of the formation member of easy polarization ultraviolet rays.

[06]

[Means for Solving the Problem] An aspect ratio is two or more and this invention offers the ultraviolet-rays polarizer characterized by carrying out distributed content after the minor axis has carried out orientation of the quality of a needlelike substance 0.5 micrometers or less in the predetermined direction. The ultraviolet-rays transparency film from which a refractive index is different 0.05 or more, and the ultraviolet-rays polarization light equipment characterized by having it in the optical outgoing radiation of a black light.

[07]

[Effect of the Invention] While according to the ultraviolet-rays polarizer of this invention being able to

cel in thin lightweight nature, and being able to form a large area object easily, therefore being able to n polarization of a large area easily, the selection range of an orientation film morphogenetic stance is wide, it is hard to absorb ultraviolet radiation, and the ultraviolet radiation of a large relength region can be used and polarization ultraviolet rays can be formed [it can excel in a life that : hard to produce generation of heat and degradation, it can be easily dealt with with a slim gestalt, l] by the easy actuation set in a black light.

08]

embodiment of the Invention] The aspect ratio of the ultraviolet-rays polarizer by this invention is two ore, after the minor axis has carried out orientation of the quality of a needlelike substance 0.5 rometers or less in the predetermined direction into the ultraviolet-rays transparency film from which rfractive index is different 0.05 or more, distributed content is carried out, and ultraviolet-rays arization light equipment arranges the ultraviolet-rays polarizer to the optical outgoing radiation side black light. The example of an ultraviolet-rays polarizer was shown in drawing 1 , and the example of aviolet-rays polarization light equipment was shown in drawing 2 . 1 is an ultraviolet-rays polarizer , for 11, the ultraviolet-rays transparency film and 12 are [the quality of a needlelike substance and black lights.

09] 300nm or more of ultraviolet-rays transparency film can be formed above all by diactinism and the per matter which penetrates ultraviolet rays with a wavelength of 250nm or more especially. The neability of ultraviolet rays for the desirable ultraviolet-rays transparency film to irradiate UV diation objects, such as an orientation film morphogenetic substance, is 30% or more of especially g 20% or more above all 10%.

10] Moreover, it excels in a thin light weight at handling nature, and the ultraviolet-rays transparency which consists of a polymer is more desirable than points, such as the easy plasticity of a large area ct. In that case, it is more desirable than points, such as high life nature by chemical stability, that t-resistant temperature, such as for example, the poly methyl pentene, polystyrene or its polymer y, and a polycarbonate, uses one sort of a polymer 100 degrees C or more or two sorts or more.

11] As quality of a needlelike substance, an aspect ratio is two or more and a thing 0.5 micrometers or is used for a minor axis. Thereby, a polarization property can be given to the transmitted light. An ect ratio is five or more four or more above all three or more, and 0.4 micrometers or less of minor s of especially the quality of a needlelike substance that can be used more preferably than the point rant of a polarization property are a thing 0.3 micrometers or less above all. Although the quality of a dlelike substance does not penetrate ultraviolet rays, what penetrates ultraviolet rays is more rable than the point of the permeability of ultraviolet rays.

12] Therefore, the proper thing which satisfies the aforementioned conditions can be used as quality needlelike substance. Incidentally as the example, titanium oxide, boric-acid aluminum and silicon ide, silicon nitride, the quality of an inorganic system needlelike substance like a zirconium dioxide or s or various kinds of organic system fiber, the macromolecule particle that may be transformed ous by drawing processing in the ultraviolet-rays transparency film are raised.

13] The above-mentioned ultraviolet-rays transparency film and the quality of a needlelike substance be used for an ultraviolet-rays polarizer in the combination from which a refractive index is different or more, and it can obtain them as that by which distributed content was carried out after the ity of a needlelike substance had carried out orientation in the predetermined direction into the aviolet-rays transparency film. What has by this the plane of vibration of the direction same among ultraviolet rays which carried out incidence to the ultraviolet-rays transparency film 11 as the ction of orientation (major axis) of the quality 12 of a needlelike substance in drawing 1 like antiation is scattered about by the interface of the quality of a needlelike substance from which sparency is interrupted and a refractive index is different, and what, on the other hand, has the plane ibration of the direction (the direction of a minor axis) which intersects perpendicularly in the ction of orientation of the quality 12 of a needlelike substance like a bold arrow carries out ilinear-propagation transparency, without being interrupted by the quality of a needlelike substance.

14] Ultraviolet rays with the plane of vibration of the direction of a minor axis of the quality of a needlelike substance which carried out orientation are formed as transparency polarization the aforementioned result. Therefore, as for the quality of a needlelike substance, it is desirable that it is possible to carry out orientation in the fixed direction as much as possible, and it is large and a minor axis is as much as possible smaller than the wavelength of the ultraviolet rays of the that an aspect ratio is high as described above, and the major axis makes it penetrate object to the wavelength of the ultraviolet rays.

15] the polarization formation function by aforementioned dispersion and aforementioned transparency, and the content above all with the quality of a needlelike substance more desirable than points, such as permeability of ultraviolet rays, and its degree of polarization, -- 0.5- of the ultraviolet-rays transparency film -- it is 1.5 - 15 % of the weight especially 1% of the weight or more above all 20% the weight. Moreover, that whose wavelength of the polarization which makes the object an ultraviolet-rays polarizer more desirable than points, such as practicability, such as formation of the orientation film, for example, the rectilinear-propagation light transmittance of the vertical-incidence light based on 300 nm ultraviolet radiation, is especially 30% or more 20% or more above all 10% or more, and an aspect ratio are ten or more above all five or more.

16] The formation of the ultraviolet-rays transparency film in which the quality of a needlelike substance carried out orientation For example, the casting method and an extrusion method, Formed by other methods, such as the injection-molding method, and roll diffusion bonding, the flow casting method, and the casting method. A method with the proper method which carries out orientation of the quality of a needlelike substance which carries out orientation in the method to which drawing processing of the ultraviolet-rays transparency film of the shape of a film which carries out distributed content of the quality of a needlelike substance is carried out, and orientation of the quality of a needlelike substance is carried out, electric field, a magnetic field, etc. to operation-ization of electric field etc. in the liquefied ultraviolet-rays transparency film, and solidifies the ultraviolet-rays transparency film can perform.

17] Although the thickness of an ultraviolet-rays polarizer can be determined suitably, especially it is set to 10-300 micrometers 5-500 micrometers above all 1 micrometer - 1mm from points, such as handling nature, such as ultraviolet-rays permeability and film reinforcement. In addition, on the occasion of formation of an ultraviolet-rays polarizer, proper additives, such as a dispersant, a surfactant, a flame retarder, and an antioxidant, can be blended, for example.

18] The ultraviolet-rays polarizer by this invention can be used for various kinds of objects, such as supply of the polarization ultraviolet rays at the time of forming the orientation film for carrying out orientation of the liquid crystal by for example, the photoisomerization reaction, photodimerization, a photolysis reaction, etc. Moreover, proper filter methods, such as a method used as the ultraviolet-rays polarization light equipment which has arranged the ultraviolet-rays polarizer 1 to the optical outgoing radiation side of the proper black lights 2, such as a high-pressure mercury lamp, can perform supply of polarization ultraviolet rays like drawing 2.

19] [Example] after kneading the example 1 poly methyl pentene 100 section (the same the weight section as the following) and two shafts of needlelike titanium oxide 3 sections with 0.1 micrometers [of minor axis], and a major axis of 10 micrometers and fabricating at 270 degrees C on a film with a thickness of 10 micrometers through a T die, it was extended 6 times at 190 degrees C, and the ultraviolet-rays polarizer in which needlelike titanium oxide carried out orientation to the direction about 1 law was obtained.

20] The ultraviolet-rays polarizer of marketing of the example dichroism matter content of a comparison was used.

21] the spectrum obtained through the 300-320nm band pass filter to the exposure light by the ultraviolet rays of a mercury xenon lamp to the ultraviolet-rays polarizer obtained in the assessment trial example and the example of a comparison -- with the ultraviolet-rays polarizer of an example, when ultraviolet rays were irradiated for 10 minutes by the reinforcement of 50 mW/cm², although there was no exterior change,

h the ultraviolet-rays polarizer of the example of a comparison, the exposure part discolored brown
l it deformed remarkably.

[22] The rectilinear-propagation light transmittance and the degree of polarization of the rectilinear-propagation transmitted light of the vertical-incidence light of ultraviolet rays with a wavelength of 300nm re investigated with the double beam type spectrophotometer about permeability and the ultraviolet-s polarizer before and behind the exposure of the degree-of-polarization above.

[23] the spectrum which obtained through the 300-320nm band pass filter to the exposure light by the rcurey xenon lamp to the polyvinyl cinnamate thin film which carried out the spin coat, and which was pared on the stacking tendency glass substrate -- it irradiated for 5 minutes through the ultraviolet-s polarizer which acquired ultraviolet rays in the example or the example of a comparison, and the entation film formed, the nematic liquid crystal poured in, the liquid crystal cell of parallel orientation ned between the obtained cel substrates, and the stacking tendency of the liquid crystal observed h a polarization microscope.

[24] The aforementioned result was shown in degree table.

	透過率 (%)		偏光度 (%)		配 向 性
	照射前	照射後	照射前	照射後	
実施例 1	3 5	3 5	8 5	8 5	モノドメイン配向
比較例	1 5	4 0	9 0	6 5	ディスクリネーション多発

[25] It turns out that the ultraviolet rays which are excellent in the polarization property of being able to form the orientation film to which there is little said degradation according to UV irradiation at an example more, it is excellent in the life, maintains the optical property good, and can carry out mono-domain orientation of the liquid crystal good supply, the polarizer of a large area can form easily by the method, it can excel in thin lightweight nature, it can deal with easily with a slim gestalt, and polarization ultraviolet rays can form by the easy actuation which sets in a black light.

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DESCRIPTION OF DRAWINGS

Brief Description of the Drawings]

Figure 1] The explanatory view of the example of an ultraviolet-rays polarizer

Figure 2] The explanatory view of the example of ultraviolet-rays polarization light equipment

Description of Notations]

Ultraviolet-rays polarizer

Ultraviolet-rays transparency film

Quality of a needlelike substance

Black light

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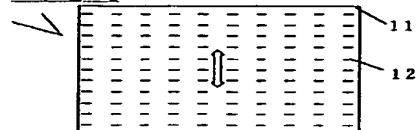
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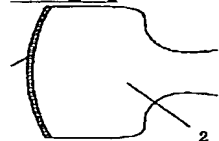
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DRAWINGS

Drawing 1]



Drawing 2]



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AIMS

aim(s)]

aim 1] The ultraviolet-rays polarizer with which a minor axis is characterized by carrying out
 tributed content of the quality of a needlelike substance 0.5 micrometers or less where orientation is
 ried out in the predetermined direction into the ultraviolet-rays transparency film from which a
 ractive index is different 0.05 or more by the aspect ratio or more by two.

aim 2] The ultraviolet-rays polarizer with which the ultraviolet-rays transparency film consists of the
 y methyl pentene, polystyrene, its polymer alloy, or a polycarbonate in claim 1.

aim 3] The ultraviolet-rays polarizer whose content of the quality of a needlelike substance is 0.5 -
 1/2 of the weight of the ultraviolet-rays transparency film in claim 1 or 2.

aim 4] The ultraviolet-rays polarizer whose extinction ratio the rectilinear-propagation light
 rsmittance of the vertical-incidence light based on the ultraviolet radiation of the object wavelength is
 1/2 or more in claims 1-3, and is five or more.

aim 5] Ultraviolet-rays polarization light equipment characterized by having an ultraviolet-rays
 arizer according to claim 1 to 4 in the optical outgoing radiation side of a black light.

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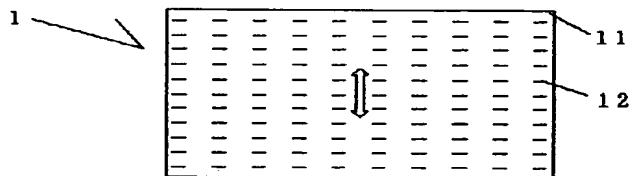
(54) 【発明の名称】 紫外線偏光子及び紫外線偏光光源装置

(57) 【要約】

【課題】 大面積の偏光形成が容易で広い波長域の紫外光を利用でき、従って配向膜形成物質の選択範囲が広くて発熱や劣化が小さく、薄型軽量性に優れて取扱が容易な偏光紫外線の形成部材の開発。

【解決手段】 アスペクト比が2以上で、短径が0.5 μm 以下の針状物質 (12) を、屈折率が0.05以上相違する紫外線透過膜 (11) 中に、所定方向に配向した状態にて分散含有する紫外線偏光子 (1)、及びそれを紫外線照射装置の光出射面に有する紫外線偏光光源装置。

【効果】 寿命に優れ、スリムな形態で容易に取扱えて紫外線照射装置にセットするだけの簡単な操作で偏光紫外線を形成できる。



【特許請求の範囲】

【請求項 1】 アスペクト比が 2 以上で、短径が 0.5 μm 以下の針状物質を、屈折率が 0.05 以上相違する紫外線透過膜中に、所定方向に配向した状態にて分散含有することを特徴とする紫外線偏光子。

【請求項 2】 請求項 1 において、紫外線透過膜がポリメチルペンテン、ポリスチレン若しくはそのポリマーアロイ、又はポリカーボネートからなる紫外線偏光子。

【請求項 3】 請求項 1 又は 2 において、針状物質の含有量が紫外線透過膜の 0.5～20 重量%である紫外線偏光子。

【請求項 4】 請求項 1～3 において、目的波長の紫外光に基づく垂直入射光の直進光透過率が 10%以上で、かつ消光比が 5 以上である紫外線偏光子。

【請求項 5】 請求項 1～4 に記載の紫外線偏光子を、紫外線照射装置の光出射面に有することを特徴とする紫外線偏光光源装置。

【発明の詳細な説明】

【0001】

【発明の技術分野】 本発明は、液晶を配向処理する配向膜の形成などに好適な紫外線偏光子及びその紫外線偏光光源装置に関する。

【0002】

【発明の背景】 ラビング処理による配向膜では大きい面積での均一な処理が難しく、帯電や塵の発生も多いことなどより液晶表示装置の大型化に対処することが困難で、液晶を大面積で配向処理できる配向膜が求められる中、偏光紫外線を利用した光異性化反応や光二量体反応、光分解反応などによる配向膜の形成方法が提案されている。

【0003】 従来、前記した偏光紫外線の形成部材としては、プリズム偏光子や偏光フィルム、偏光分離器が知られていた。しかしながら、プリズム偏光子では大型化が困難で大面積の偏光を得ることが難しく、紫外領域で二色性を示す物質を用いた偏光フィルムでは機能限界が 350nm であるためそれ以上の波長に感応する配向膜に制約され、また吸収光による発熱や劣化が大きい問題点があった。

【0004】 また斜め積層のガラス板によるブリュスター角を利用した偏光分離器では、偏光の大面積化に伴い装置の大型化が著しく、入射角をブリュスター角に設定する必要のあることから装置の組立に高精度なセッティング技術が要求される問題点があった。

【0005】

【発明の技術的課題】 本発明は、大面積の偏光形成が容易で広い波長域の紫外光を利用でき、従って配向膜形成物質の選択範囲が広くて発熱や劣化が小さく、薄型軽量性に優れて取扱が容易な偏光紫外線の形成部材の開発を課題とする。

【0006】

【課題の解決手段】 本発明は、アスペクト比が 2 以上で、短径が 0.5 μm 以下の針状物質を、屈折率が 0.05 以上相違する紫外線透過膜中に、所定方向に配向した状態にて分散含有することを特徴とする紫外線偏光子、及びそれを紫外線照射装置の光出射面に有することを特徴とする紫外線偏光光源装置を提供するものである。

【0007】

【発明の効果】 本発明の紫外線偏光子によれば、薄型軽量性に優れ大面積体を容易に形成でき、従って大面積の偏光を容易に形成できると共に広い波長域の紫外光を利用できて配向膜形成物質の選択範囲が広く、紫外光を吸収しにくくて発熱や劣化を生じにくく寿命に優れて、スリムな形態で容易に取扱うことができ、紫外線照射装置にセットするだけの簡単な操作で偏光紫外線を形成することができる。

【0008】

【発明の実施形態】 本発明による紫外線偏光子は、アスペクト比が 2 以上で、短径が 0.5 μm 以下の針状物質を、屈折率が 0.05 以上相違する紫外線透過膜中に、所定方向に配向した状態にて分散含有するものであり、紫外線偏光光源装置はその紫外線偏光子を紫外線照射装置の光出射面に配置したものである。紫外線偏光子の例を図 1 に、紫外線偏光光源装置の例を図 2 に示した。1 が紫外線偏光子で、11 が紫外線透過膜、12 が針状物質、2 が紫外線照射装置である。

【0009】 紫外線透過膜は、紫外線透過性、就中 300nm 以上、特に 250nm 以上の波長の紫外線を透過する適宜な物質にて形成することができる。好ましい紫外線透過膜は、配向膜形成物質等の紫外線照射対象に照射する目的の紫外線の透過率が 10%、就中 20% 以上、特に 30% 以上のものである。

【0010】 また薄型軽量で取扱性に優れ、大面積体の容易な形成性などの点よりはポリマーからなる紫外線透過膜が好ましい。その場合、化学的安定性による高寿命性などの点よりは、例えばポリメチルペンテンやポリスチレン若しくはそのポリマーアロイ、ポリカーボネートなどの耐熱温度が 100℃ 以上のポリマーの 1 種又は 2 種以上を用いることが好ましい。

【0011】 針状物質としては、アスペクト比が 2 以上で、短径が 0.5 μm 以下のものが用いられる。これにより透過光に偏光特性を付与することができる。偏光特性の付与の点より好ましく用いる針状物質は、アスペクト比が 3 以上、就中 4 以上、特に 5 以上であり、短径が 0.4 μm 以下、就中 0.3 μm 以下のものである。針状物質は、紫外線を透過しないものであってもよいが、紫外線の透過率の点よりは紫外線を透過するものが好ましい。

【0012】 従って針状物質としては、前記の条件を満足する適宜なものをを用いる。ちなみにその例として

は、酸化チタンやホウ酸アルミニウム、炭化ケイ素や窒化ケイ素、酸化ジルコニウムやガラスの如き無機系針状物質、あるいは各種の有機系繊維や、紫外線透過膜中で延伸処理により繊維状に変形する高分子微粒子などがあげられる。

【0013】紫外線偏光子は、上記した紫外線透過膜と針状物質を屈折率が0.05以上相違する組合せで用いて、その紫外線透過膜中に針状物質が所定の方に配向した状態で分散含有されたものとして得ることができる。これにより図1に例示の如く、紫外線透過膜11に入射した紫外線の内、針状物質12の配向（長径）方向と同じ方向の振動面をもつものは透過を遮られて屈折率が相違する針状物質の界面で散乱され、一方、太矢印の如く針状物質12の配向方向に直交する方向（短径方向）の振動面をもつものは針状物質に遮られずに直進透過する。

【0014】前記の結果、配向した針状物質の短径方向の振動面をもつ紫外線が透過偏光として形成される。従って針状物質は、可及的に一定方向に配向していることが好ましく、また上記したようにアスペクト比が高く、その長径が透過させる目的の紫外線の波長よりも大きく、短径がその紫外線の波長に対して可及的に小さいことが好ましい。

【0015】前記の散乱と透過による偏光形成機能、就中、紫外線の透過率やその偏光度などの点より針状物質の好ましい含有量は、紫外線透過膜の0.5~20重量%、就中1重量%以上、特に1.5~15重量%である。また配向膜の形成等の実用性などの点より好ましい紫外線偏光子は、目的とする偏光の波長、例えば300nmの紫外光に基づく垂直入射光の直進光透過率が10%以上、就中20%以上、特に30%以上であるものや、消光比が5以上、就中10以上であるものである。

【0016】針状物質が配向した紫外線透過膜の形成は、例えばキャスト法や押出成形法、射出成形法やロール成形法、流延成形法などの適宜な方式で形成した、針状物質を分散含有するフィルム状の紫外線透過膜を延伸処理して針状物質を配向させる方式や、電場や磁場等にて配向する針状物質を液状の紫外線透過膜中で電場等の作用化に配向させてその紫外線透過膜を固化させる方式などの適宜な方式にて行うことができる。

【0017】紫外線偏光子の厚さは、適宜に決定しうるが、一般には紫外線透過率や膜強度等の取扱性などの点より、1 μ m~1mm、就中5~500 μ m、特に10~3

00 μ mとされる。なお紫外線偏光子の形成に際しては、例えば分散剤や界面活性剤、難燃剤や酸化防止剤などの適宜な添加剤を配合することができる。

【0018】本発明による紫外線偏光子は、例えば光異性化反応や光二量化反応、光分解反応などにより液晶を配向させるための配向膜を形成する際の偏光紫外線の供給などの各種の目的に用いることができる。また偏光紫外線の供給は、例えば図2の如く高圧水銀ランプ等の適宜な紫外線照射装置2の光射出面に紫外線偏光子1を配置した紫外線偏光光源装置とする方式などの、適宜なフィルター方式にて行うことができる。

【0019】

【実施例】実施例1

ポリメチルペンテン100部（重量部、以下同じ）と短径0.1 μ m、長径10 μ mの針状酸化チタン3部を二軸混練してTダイを介し270℃で厚さ300 μ mのフィルムに成形した後、それを190℃で6倍に延伸して、針状酸化チタンがほぼ一定方向に配向した紫外線偏光子を得た。

20 【0020】比較例

二色性物質含有の市販の紫外線偏光子を用いた。

【0021】評価試験

実施例、比較例で得た紫外線偏光子に、水銀キセノンランプによる照射光に対し300~320nmのバンドパスフィルタを介して得た分光紫外線を50mW/cm²の強度で10分間照射したところ、実施例の紫外線偏光子では外観上の変化がなかったが、比較例の紫外線偏光子では照射部分が褐色に変色し、かつ著しく変形した。

【0022】透過率、偏光度

30 前記の照射前後における紫外線偏光子について、波長300nmの紫外線の垂直入射光の直進光透過率と、その直進透過光の偏光度をダブルビーム型分光光度計にて調べた。

【0023】配向性

40 ガラス基板上にスピンコートして設けたポリビニルシナメート薄膜に、水銀キセノンランプによる照射光に対し300~320nmのバンドパスフィルタを介して得た分光紫外線を実施例又は比較例で得た紫外線偏光子を介して5分間照射して配向膜を形成し、得られたセル基板間にネマチック液晶を注入して平行配向の液晶セルを形成し、その液晶の配向性を偏光顕微鏡により観察した。

【0024】前記の結果を次表に示した。

	透過率 (%)		偏光度 (%)		配 向 性
	照射前	照射後	照射前	照射後	
実施例1	35	35	85	85	モノドメイン配向
比較例	15	40	90	65	ディスクリネーション多発

【0025】前記より、実施例では紫外線照射による劣化が少なく寿命に優れており、その光学特性を良好に維持して液晶を良好にモノドメイン配向できる配向膜を形成できるなどの偏光特性に優れた紫外線を供給し、フィルム方式で大面積の偏光子を容易に形成できて薄型軽量性に優れ、スリムな形態で容易に取扱うことができ紫外線照射装置にセットするだけの簡単な操作で偏光紫外線を形成できることがわかる。

【図面の簡単な説明】

【図1】紫外線偏光子例の説明図

【図2】紫外線偏光光源装置例の説明図

【符号の説明】

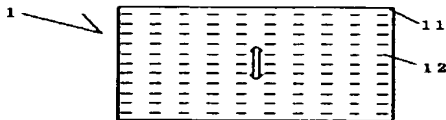
1：紫外線偏光子

11：紫外線透過膜

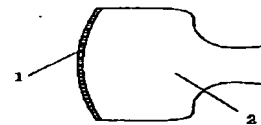
12：針状物質

2：紫外線照射装置

【図1】



【図2】



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